REMARKS

Claims 1-32 are currently pending in the application; with claims 1 and 17 being independent. Claims 1-32 were pending prior to the Office Action.

In the current amendment, claims 1-3, 6-7, 10-12, 17-19, 23 and 26-28 have been amended. The amendments to claims 2-3, 6-7, 10-12, 18-19, 23 and 26-28 were not made to overcome any statutory rejection.

The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein. Applicant respectfully requests favorable consideration thereof in light of the amendments and comments contained herein, and earnestly seeks timely allowance of the pending claims.

Claim Objections

Claims 2-3, 6-7, 10-12, 18-19, 23 and 26-28 are objected to because of informalities.

This objection is respectfully traversed. Applicant has amended claims 2-3, 6-7, 10-12, 18-19, 23 and 26-28 by correcting informalities. Accordingly, Applicant respectfully requests that the objection to claims 2-3, 6-7, 10-12, 18-19, 23 and 26-28 be reconsidered and withdrawn.

Claim Rejections – 35 USC §103

The Examiner rejected claims 1-14, 16-30 and 32 under 35 U.S.C. 103(a) as being unpatentable over US Patent Application 20040264780 ("Zhang et al.") in view of US Patent 6,873,713 ("Okazaki et al."). The Examiner rejected claims 15 and 31 under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. and Okazaki et al., further in view of US Patent Application 20020122596 ("Bradshaw").

The Applicant respectfully traverses these rejections.

The Applicant has amended independent claims 1 and 17. Applicant has amended claim 1 to recite applying each extracted feature to a previously-determined additive probability model to determine the likelihood that the object of interest belongs to an existing class of objects, wherein said additive probability model models the objects using a class center and residual components between the objects and the class center.

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Applicant has also amended claim 17 to recite a likelihood determining unit for applying each extracted feature to a previously-determined additive probability model to determine the likelihood that the object of interest belongs to an existing class of objects, wherein said additive probability model models the objects using a class center and residual components between the objects and the class center.

To establish a *prima facie* case of obviousness, the Examiner has the burden of meeting the basic criterion that the prior art must teach or suggest all of the claim limitations.

Regarding this basic criterion, the Applicant submits that Zhang et al., Okazaki et al., and Bradshaw do not disclose or suggest applying each extracted feature to a previously-determined additive probability model to determine the likelihood that the object of interest belongs to an existing class of objects, wherein said additive probability model models the objects using a class center and residual components between the objects and the class center.

Zhang et al. discloses systems and methods for annotating a face in a digital image. In one aspect, a probability model is trained by mapping one or more sets of sample facial features to corresponding names of individuals. A face from an input data set of at least one the digital image is then detected. Facial features are then automatically extracted from the detected face. A similarity measure is then modeled as a posterior probability that the facial features match a particular set of features identified in the probability model. The similarity measure is statistically learned. A name is then inferred as a function of the similarity measure. The face is then annotated with the name (Abstract).

In Zhang et al., a set of features is extracted for a new face, and similarity between the new face and another face is measured using these features. Face similarity is calculated as a maximum a posteriori (MAP) estimation (paragraph [0051]). The similarity between two faces is calculated based on a difference ΔF between the face features of the two faces, a likelihood for the feature difference ΔF given a class Ω_I that corresponds to facial feature differences between appearances of a same individual, and a likelihood for the feature difference ΔF given a class Ω_E that corresponds to facial feature variations between different individuals (paragraphs [0055], [0057] and [0058]).

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Zhang et al. does not use an additive probability model that models objects using a class center and residual components between the objects and the class center, as claimed in claims 1 and 17. Specifically, class Ω_1 merely corresponds to facial feature differences between appearances of a same individual, and class Ω_E merely corresponds to facial feature variations between different individuals. Classes Ω_1 and Ω_E are not part of an additive probability model that models the objects using a class center and residual components between the objects and the class center.

Hence, Zhang et al. merely calculates a similarity measure between two faces based on how large or how small feature differences are between faces of a same individual or faces of different individuals. An additive probability model that models objects using a class center and residual components between the objects and the class center is not mentioned anywhere in Zhang et al. Hence, Zhang et al. fails to teach or suggest all of the elements for claim 1 and for claim 17.

Okazaki et al. merely discloses a method to sense a facial image from different directions. Pupil and nasal cavity regions are detected from the sensed facial image, feature points are detected from the detected regions, a feature pattern is extracted on the basis of the feature points, and the feature pattern is registered or is verified with a registered feature pattern to identify a person (Abstract).

Okazaki et al. does not apply each extracted feature to a previously-determined additive probability model to determine the likelihood that an object of interest belongs to an existing class of objects. No additive probability model is mentioned in Okazaki et al. Hence, Okazaki et al fails to teach or suggest all of the elements for claim 1 and for claim 17.

Bradshaw merely discloses a technology for semantically classifying areas of an image (and/or the images themselves) as one of a number of multiple discriminating categories. The technology employs one or more hierarchical, probabilistic techniques for performing such classification. The architecture of the technology employs multiple hierarchical layers. The architecture is based on modeling class likelihoods at each of such layers separately and then combining these to form an overall estimate of the posterior, conditioned on the data (Abstract).

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Bradshaw does not determine the likelihood that an object of interest belongs to an existing class of objects using a previously-determined additive probability model. An additive probability model is not mentioned anywhere in Bradshaw. Hence, Bradshaw fails to teach or suggest all of the elements for claim 1 and for claim 17.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 (a) rejection of claims 1 and 17. Claims 2-16 depend from claim 1 and are allowable at least by virtue of their dependency. Claims 18-32 depend from claim 17 and are allowable at least by virtue of their dependency.

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Conclusion

In view of the above amendments and remarks, this application appears to be in condition for allowance and the Examiner is, therefore, requested to reexamine the application and pass the claims to issue.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Corina E. Tanasa, Limited Recognition No. L0292 under 37 CFR §11.9(b), at telephone number (703) 208-4003, located in the Washington, DC area, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: October 9, 2007

Respectfully submitted,

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